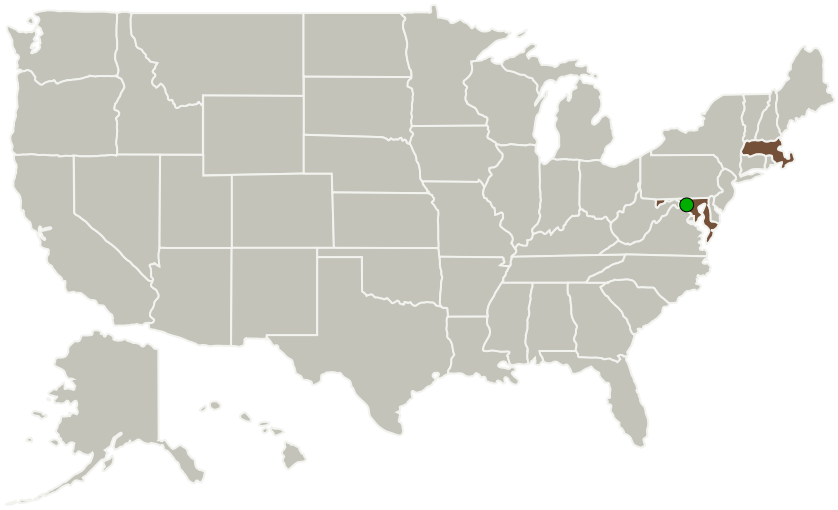
ADR Magnets Operating at 30-40K, Phase II

Completed Technology Project (2011 - 2014)

Project Introduction

This program is designed to achieve high operational efficiency for superconducting ADR magnets in space, and to meet space launch requirements. The overall technical objective is to manufacture an efficient magnet using YBCO HTS tapes that can generate 3 T at 30-40 K with an operating current of 5-7 A. To meet this goal we will conduct research and development in areas of: 1) Characterization and use of 1.25 mm YBCO tape in ADR coils. 2) Fabrication of narrower YBCO tapes. 3) Development of low resistance tape-to-tape electrical joints. 4) Quench protection of YBCO ADR coils operating at 30-40 K. 5) Design and manufacturing of a 3 T, YBCO ADR magnet. 6) Testing of the 3 T magnet at 30-40 K.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Superconducting Systems, Inc.	Lead Organization	Industry	Billerica, Massachusetts
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

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Primary U.S. Work Locations	
Maryland	Massachusetts

Project Transitions

June 2011: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137331)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Superconducting Systems, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

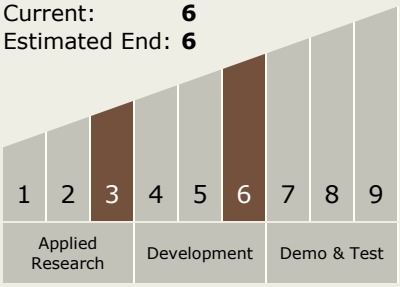
Carlos Torrez

Principal Investigator:

Shahin - Pourrahimi

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System